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Shih-Hsiung Ni

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EXAMINER

DIVECHA, KAMAL B

ART UNIT

PAPER NUMBER

2151

DATE MAILED: 09/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/982,794

Applicant(s)

NI, SHIH-HSIUNG

Examiner

KAMAL B. DIVECHA

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Arguments

Claims 1-13 are pending in this application.

Applicant's arguments filed June 15, 2006 have been fully considered but they are not persuasive.

In response filed, applicant argues in substance that:

- a. There is no teaching or suggestion in Thompson of a packet that includes a plurality of cells, including a header cell with header and packet information (remarks, page 13).

In response to argument [a], Examiner disagrees because the claims do not disclose a packet that includes a plurality of cells. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The claim simply states, "a network device configured to prevent data misalignment of a data packet...to receive at least one cell of the data packet..."

The claim does not teach or suggest that packet is divided into plurality of cells.

On the other hand, Thompson expressly teaches the process of receiving plurality of packets, wherein the packet includes a header and the data (col. 11 L15-42 and fig. 3-6).

As such, Thompson does teach the process of receiving at least one data packet, wherein the data packet includes a header and data portion as indicated above.

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b. Thompson does not teach or suggest inserting null bytes into the header cell of the data packet to form a modified header cell of the data packet if the counter determines that the header cell of the data packet does not satisfy the multiple of the predetermined number of bytes, as in claims 1, 6 and 10 (remarks, page 14).

In response to argument [b], Examiner disagrees.

The rejection of claim 1 is:

As per claim 1, Thompson discloses a network device configured to prevent data misalignment of a data packet containing extra header bytes (col. 1 L25-38), the network device comprising: an ingress module having an input interface to receive a cell of the data packet (col. 1 L25-30, col. 11 L26-32, applicant admitted prior art, AAPA, pg. 4 [0008]); a header detector configured to detect a header of a cell of the data packet and remove the header from the cell of the data packet (col. 11 L51 to col. 12 L10, AAPA pg. 4 [0008]); an insertion module configured to insert null bytes into the cell of the data packet to form a modified cell of the data packet if the CPU determines that the header/data split is not on an even byte boundary (i.e. the number of bytes remaining in data portion is not even, and the alignment must be corrected by processor 15 by inserting null bytes into the header of the cell, col. 12 L28-36, col. 1 L25-34; col. 5 L10-15, L29-37; fig 9; col. 4 L34-37: i.e. if the header/data split is not even, pad bytes or null bytes are inserted to correct the alignment); and an extraction module configured to remove the null bytes from the modified header cell of the data packet as a modified cell of the data packet exits the network device (col. 6 L35-46), however Thompson does not disclose a counter to determine whether the cell of the data packet contains a multiple of a predetermined number of bytes after the header has been removed.

Scott, from the same field of endeavor discloses a network device comprising: an ingress module having an input interface to receive a cell of the data packet (col. 10 L15-21); an egress module having output interface to output the cells (col. 10 L27-30); a header detector configured to detect a header of the cell of the data packet and remove the header from the cell of the data packet (col. 10 L22-23, L54-55); a counter to determine and/or count the number of octets of the user data PDU of the payload; and an insertion module that adds pad characters to make the frame or cell equal an integer number of 48 octet cells (i.e. inserting null bytes if the frame or cell does not satisfy an integer number of 48 octet i.e. if it does not satisfy the multiple number of the predetermined number of bytes, an even number, col. 10 L40-50, fig. 5C item #236).

Therefore it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Thompson in view of Scott, in order to include a counter that determines whether the cell of the data packet contains a multiple of a predetermined number of bytes after the header has been removed (i.e. a counter that counts number of bytes in the cell of the data packet), since Scott teaches and discloses a counter that counts data octets of the user data PDU of the payload and adding pad characters to make the frame equal an integer number of an even number of 48 octet cells.

One of ordinary skilled in the art would have been motivated because it would have determined and/or counted the number of bytes in a cell (Scott, col. 10 L40-50) and based on the determination it would have inserted the pad byte into the cell in order to align the headers and the cell (Thompson, col. 1 L25-38).

Therefore, the combination of Thompson and Scott does teach and disclose the process of inserting null bytes into the header cell of the data packet to form a modified header cell of the

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data packet if the counter determines that the header cell of the data packet does not satisfy the multiple of the predetermined number of bytes,

c. There is simply no teaching or suggestion in Scott of inserting null bytes into the header cell of the data packet to form a modified header cell of the data packet if the counter determines that the header cell of the data packet does not satisfy the multiple of the predetermined number of byte (remarks, page 14).

In response to argument [c], Examiner disagrees for the same reasons as set forth in argument b above, i.e. the combination of Thompson and Scott does indeed teach and disclose the network device as claimed, as set forth above.

d. There is no teaching or suggestion in Scott of dividing the frame into a number of cells, with the header cell including header and data portions (remarks, page 14).

In response to argument [d], Examiner continues to disagree because, it is noted that the feature such as dividing the frame into a number of cells, are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

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e. Applicants continue to respectfully submit that the office action has pieced together four references to teach the claimed invention. Applicants respectfully submit that the cited references do not provide a suggestion or motivation (remarks, page 17-18).

In response to applicant's argument that the examiner has combined four references, reliance on a large number of references in a rejection does not, without more, weigh against the obviousness of the claimed invention. See *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation comes from a secondary reference (i.e. Scott) and a primary reference (i.e. Thompson) and the motivation has been clearly stated as:

One of ordinary skilled in the art would have been motivated because it would have determined and/or counted the number of bytes in a cell (Scott, col. 10 L40-50) and based on the determination it would have inserted the pad byte into the cell in order to align the headers and the cell (Thompson, col. 1 L25-38).

Technically, given the Thompson reference, a person having ordinary skilled in the relevant art, can modify a network switch having an uplink interface (note that the network switches are well known) to implement the invention of Thompson for aligning the network

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packets and/or headers. In such a case, the number of references needed in order to arrive at the claimed invention might not be four.

As such, the modification is considered obvious over the prior art, which has been expressly shown by establishing a proper *prima facie case of obviousness*.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the **second paragraph of 35 U.S.C. 112**:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 6 and 10 recites the limitations "...an ingress module having an input interface to receive at least one cell of the data packet, wherein a header cell of the at least one cell comprises a header and packet, a header detector configured to detect a header cell of the data packet and remove the header from the header cell of the data packet, a counter to determine whether the header cell of the data packet contains a multiple of a predetermined number of bytes after the header has been removed from the header cell, an insertion module configured to insert null bytes into the header cell of the data packet..."

It is unclear whether the process of determining whether the header cell of the data packet contains a multiple of a predetermined number of bytes after the header has been removed from the header cell is with respect to a header or with respect to the portion remaining of the header cell after the header is removed.

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It is further unclear whether the process of inserting null bytes and removing the null bytes from the header cell is with respect to the header of the header cell or with respect to the packet data information.

For examining purposes, the process of counting, inserting and removing would be interpreted as with respect to a data packet.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 6 and 10 are rejected under 35 U.S.C. 103(a) as being obvious over Thompson, Michael I. (herein known as Thompson, EP 0 572 145 A2) in view of Scott (U. S. Patent No. 6,512,773 B1).

As per claim 1, Thompson discloses a network device configured to prevent data misalignment of a data packet containing extra header bytes (col. 1 L25-38), the network device comprising: an ingress module having an input interface to receive a cell of the data packet, wherein a header cell of the at least one cell comprises a header and packet data information (col. 1 L25-30, col. 11 L26-32, applicant admitted prior art, AAPA, pg. 4 [0008]); a header detector configured to detect a header of a cell of the data packet and remove the header from the cell of the data packet (col. 11 L51 to col. 12 L10, AAPA pg. 4 [0008]); an insertion module configured to insert null bytes into the cell of the data packet to form a modified cell of the data packet if the

CPU determines that the header/data split is not on an even byte boundary (i.e. the number of bytes contained in data portion is even, multiple of predetermined bytes is an even number or odd), and the alignment must be corrected by processor 15 by inserting null bytes into the header of the cell (col. 12 L28-36, col. 1 L25-34; col. 5 L10-15, L29-37; fig 9; col. 4 L34-37: i.e. if the header/data split is not even, pad bytes or null bytes are inserted to correct the alignment); and an extraction module configured to remove the null bytes from the modified header cell of the data packet as a modified cell of the data packet exits the network device (col. 6 L35-46), however Thompson does not disclose a counter to determine whether the cell of the data packet contains a multiple of a predetermined number of bytes after the header has been removed.

Scott, from the same field of endeavor discloses a network device comprising: an ingress module having an input interface to receive a cell of the data packet (col. 10 L15-21); an egress module having output interface to output the cells (col. 10 L27-30); a header detector configured to detect a header of the cell of the data packet and remove the header from the cell of the data packet (col. 10 L22-23, L54-55); a counter to determine and/or count the number of octets of the user data PDU of the payload; and an insertion module that adds pad characters to make the frame or cell equal an integer number of 48 octet cells (i.e. inserting null bytes if the frame or cell does not satisfy an integer number of 48 octet i.e. if it does not satisfy the multiple number of the predetermined number of bytes, an even number, col. 10 L40-50, fig. 5C item #236).

Therefore it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Thompson in view of Scott, in order to include a counter that determines whether the cell of the data packet contains a multiple of a predetermined number of bytes after the header has been removed (i.e. a counter that counts number of bytes in the cell of

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the data packet), since Scott teaches and discloses a counter that counts data octets of the user data PDU of the payload and adding pad characters to make the frame equal an integer number of an even number of 48 octet cells.

One of ordinary skilled in the art would have been motivated because it would have determined and/or counted the number of bytes in a cell (Scott, col. 10 L40-50) and based on the determination it would have inserted the pad byte into the cell in order to align the headers and the cell (Thompson, col. 1 L25-38).

As per claim 6, Thompson discloses forwarding the modified cell of the data packet to an output port (col. 6 L30-46) and therefore, claim 6 is rejected for the same reasons as set forth in claim 1 above.

As per claim 10, it does not teach or further define over the limitations in claims 1 and 6. Therefore, claim 10 is rejected for the same reasons as set forth in claim 1 and 6 above.

3. Claims 2-4, 7-8 and 11-12 are rejected under 35 U.S.C. 103(a) as being obvious over Thompson, Michael I. (herein known as Thompson, EP 0 572 145 A2), in view of Scott (U. S. Patent No. 6,512,773 B1), and further in view of Denton et al. (U. S. Patent No. 6,567,413 B1).

As per claim 2, Thompson in view of Scott does not explicitly disclose wherein network device comprises an aggregator (read as data transferring device) that interfaces with an Ethernet and a SPI-4 communication system.

Denton explicitly discloses a multi-protocol processor comprising data transmitting processors interfacing with an Ethernet and a SPI-4 communication interfaces (fig. 2). Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was

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made to incorporate the teaching of Denton as stated above with Thompson in view of Scott for the purpose of interfacing an aggregator with an Ethernet and SPI-4 communication interfaces.

One of ordinary skilled in the art would have been motivated because it would performed data link and physical sub-layer processing on the egress and ingress data in accordance with a selected one of plurality of supported protocols, enabling communication of packetized data between different types of communication networks (Denton, col. 4 L5-8).

As per claim 3, Thompson in view of Scott does not disclose the system wherein the aggregator (read as data transferring device) is configured to interface between a twelve 1-Gigabit ports (read as gigabit module having 12 ports) and one 12 Gigabit/s SPI-4 uplink.

Denton discloses a multi-protocol processor comprising data transmitting processors configured to interface between Gigabit Ethernet module and SPI-4 uplink module (fig. 2 item #204-#222).

Therefore, it would have been obvious to a person of ordinary skilled in the art to modify Denton to configure data transferring device (path processor) to interface between 12-port GBIC module and one SPI-4 uplink.

One of ordinary skilled in the art would have been motivated because it would have enabled communication of packetized data between egress and ingress modules or communications between the Ethernet module and the uplink.

As per claim 4, Thompson in view of Scott does not disclose a network device comprising a network switch.

Denton, from the same field of endeavor discloses a network switch (fig. 1-fig. 3 and col. 2 L23-45).

Therefore it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to incorporate the teaching of Denton with Thompson in view of Scott, in order to include a network switch.

One of ordinary skilled in the art would have been motivated because network switch are well known devices used for switching cells from a plurality of network input links to a plurality of network output links and for the same reasons as set forth in claim 2.

As per claim 7-8 and 11-12, they do not teach or further define over the limitations in claim 2-4. Therefore, claims 7-8 and 11-12 are rejected for the same reasons as set forth in claim 2-4.

4. Claims 5, 9 and 13 are rejected under 35 U.S.C. 103(a) as being obvious over Thompson, Michael I. (herein known as Thompson, EP 0 572 145 A2), in view of Scott (U. S. Patent No. 6,512,773 B1), and further in view of Yik et al. (U. S. Patent No. 6,697,873 B1).

As per claim 5, Thompson in view of Scott discloses the network device configured to instruct the extraction module to remove the null bytes from the modified cell of the data packet as the modified cell of the data packet exits the network device (Thompson, col. 6 L35-46), however, Thompson in view of Scott does not disclose a medium access control protocol module having a MAC address for transmitting the modified cell of the data packet and a layer two switching module configured to build a table of forwarding rules upon which the MAC addresses exist.

Yik explicitly discloses an apparatus comprising a medium access control protocol module having a MAC address for transmitting the modified cell of the data packet and a frame-forwarding device including MAC address tables (i.e. a layer two switching module building a

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forwarding table based on MAC addresses, see abstract, fig. 2, fig. 6, fig. 7A and col. 2L20-31, col. 4 L33-67).

Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to incorporate the teaching of Yik as stated above with Thompson in view of Scott in order to include a MAC module for transmitting the modified cell of the data packet and a layer two switching module for building a forwarding table.

One of ordinary skilled in the art would have been motivated because it would have increased the performance of the network by forwarding the frames to the correct output port associated with the particular MAC address (Yik, col. 2 L20-31).

As per claim 9 and 13, they do not teach or further define over the limitations in claim 5. Therefore, claims 9 and 13 are rejected for the same reasons as set forth in claim 5.

Additional References

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Sheth, Jayesh V., U. S. Patent No. 4,613,954.
- b. Kunitomo et al., U. S. Patent No. 5,101,404.
- c. Kurano et al., U. S. Patent No. 5,249,178.
- d. Elzur et al., U. S. Patent No. 6,449,656 B1.
- e. Bakke et al., U. S. Patent No. 5,566,170: Method and Apparatus for accelerated packet forwarding.

Conclusion

In order to expedite the prosecution in this application, applicant should consider the following:

- Including the process of dividing the frame or data packet into plurality of cells, if supported by the specification, this is usually the case in an ATM networks.
- Clarify the difference between the cell, header cell, header and the data in the claims.
- Clarify the process of counting, inserting, and removing whether they are done with respect to a header, header cell, or data remaining after the header has been removed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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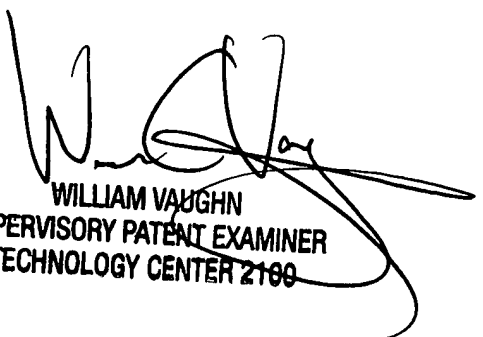
Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAMAL B. DIVECHA whose telephone number is 571-272-5863. The examiner can normally be reached on Increased Flex Work Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zarni Maung can be reached on 571-272-3939. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Kamal Divecha
Art Unit 2151
August 30, 2006.



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